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Air Force Unveils a New Radar For Detecting Missile Attacks

By EVERT CLARK
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EGLIN AIR FORCE BASE, Fla., Dec. 6—A huge new radar that the Air Force says doubles the nation's capability to track friendly or hostile space objects was unveiled here today.

There are about 1,500 objects in orbit now—satellites, rockets and smaller space debris. Space experts predict there will be 5,000 objects by the mid-1970's.

The radar will be able to track 95 per cent of all the objects in space at any one time, the Air Force said.

The new radar is a giant concrete building, more than a block long and 15 stories high, with a sloped face that lacks the familiar rotating antenna of most radar installations.

Instead of scanning the southern skies mechanically, it does so electronically, transmitting as many as 5,184 beams of radio energy at space targets and receiving the energy that is bounced back with 4,660 elements buried beneath plastic foam on the building's face.

It can detect, track, identify and predict the orbits of many objects at the same time and is the first radar designed specifically for these space tracking purposes. Until now, radars built for other purposes have been adapted to the space tracking task.

The new radar has been given the task of detecting ballistic missile attacks launched from ships or submarines.

Today newsmen watched as the system tracked orbiting objects as far as 2,650 miles away.

Despite the radar's flexibility, however, it is not designed to guard against the fractional orbital bombs the Defense Department says the Soviet Union is developing. These objects travel for less than one turn around the earth at a height of 90 to 100 miles, instead of lofting 800 miles above the earth as a ballistic missile does.

If a Russian Fractional Orbital Ballistic System were aimed directly at the southern United States, the new radar might pick it up as much as 7.5 minutes before it was due to strike its target—less warning time than Secretary of Defense Robert S. McNamara says would eventually be gained by using an over-the-horizon radar system.

The new system here, called an AN/FPS-85 space track radar, does not look over the horizon radar points more near a line of sight. But an over-the-horizon radar points more nearly upward and bounces its waves off electrically sensitive layers of the atmosphere and back down again, in effect, looking around the corner of the horizon.

There are no over-the-horizon radar installations guarding the southern defenses of the United States now, according to Air Force officers here. Nor is the new radar designed as a part of the Sentinel antimissile system the Defense Department will use to protect against a missile attack from Communist China.

But any object that orbits the earth crosses the equator twice a day. Since the new radar faces south toward the equator, it is expected to "see" each orbiting object twice daily and greatly improve the tracking and cataloguing task of the Air Defense Command, which is a part of the North American Air Defense Command.

Connected to the radar are three computers that can in one or two minutes determine whether an object passing into view is new or old, what its orbital characteristics are and where it will land if it is on a ballistic trajectory or is a satellite about to be dragged down by the earth's gravity.

The entire system here is tied in to the Space Defense Center buried in Cheyenne Mountain in Colorado, where NORAD attempts to keep track of all air and space threats to the United States.

"The launching of Sputnik really caught this country flat-footed in its ability to track space objects," Col. Robert L. Edge, director of space defense systems programs for the Air Force, said at a news conference today.

Radars designed for many purposes were pressed into service. But until now none had been built to cover all the military space tracking tasks from one spot.

"Nothing that we know of in the world and certainly not in the free world will be able to match this one," Colonel Edge said.

The radar was conceived in 1961 as "a box sitting in a field somewhere to catalogue satellites," Maj. H. J. McLoud of the Air Force Systems Command's electronic systems division said. Since then, the mission of watching for missiles launched from submarines has been added. The question of how the radar might be modified to help warn against a fractional orbital attack also is being explored.